



1/12

SEQUENCE LISTING

<110> Croce, Carlo
 Brenner, Charles
 Pekarsky, Yuri

<120> CRYSTAL STRUCTURE OF WORM Nit Fhit
 REVEALS THAT A Nit TETRAMER BINDS TWO Fhit DIMERS

<130> 3589.1007-000

<140> 09/855,294

<141> 2001-05-15

<150> 60/204,713

<151> 2000-05-16

<160> 15

<170> FastSEQ for Windows Version 4.0

<210> 1

<211> 276

<212> PRT

<213> Homo sapiens

<400> 1

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Lys	Ser	Asp	Asn	Val	Thr	Arg	Ala	Cys	Ser	Phe	Ile	Arg	Glu	Ala	Ala
			20					25					30		
Thr	Gln	Gly	Ala	Lys	Ile	Val	Ser	Leu	Pro	Glu	Cys	Phe	Asn	Ser	Pro
		35					40					45			
Tyr	Gly	Ala	Lys	Tyr	Phe	Pro	Glu	Tyr	Ala	Glu	Lys	Ile	Pro	Gly	Glu
	50					55				60					
Ser	Thr	Gln	Lys	Leu	Ser	Glu	Val	Ala	Lys	Glu	Cys	Ser	Ile	Tyr	Leu
65					70					75				80	
Ile	Gly	Gly	Ser	Ile	Pro	Glu	Glu	Asp	Ala	Gly	Lys	Leu	Tyr	Asn	Thr
			85						90					95	
Cys	Ala	Val	Phe	Gly	Pro	Asp	Gly	Thr	Leu	Leu	Ala	Lys	Tyr	Arg	Lys
			100					105					110		
Ile	His	Leu	Phe	Asp	Ile	Asp	Val	Pro	Gly	Lys	Ile	Thr	Phe	Gln	Glu
		115					120					125			
Ser	Lys	Thr	Leu	Ser	Pro	Gly	Asp	Ser	Phe	Ser	Thr	Phe	Asp	Thr	Pro
	130					135					140				
Tyr	Cys	Arg	Val	Gly	Leu	Gly	Ile	Cys	Tyr	Asp	Met	Arg	Phe	Ala	Glu
145					150					155					160
Leu	Ala	Gln	Ile	Tyr	Ala	Gln	Arg	Gly	Cys	Gln	Leu	Leu	Val	Tyr	Pro
			165						170					175	
Gly	Ala	Phe	Asn	Leu	Thr	Thr	Gly	Pro	Ala	His	Trp	Glu	Leu	Leu	Gln
			180					185					190		
Arg	Ser	Arg	Ala	Val	Asp	Asn	Gln	Val	Tyr	Val	Ala	Thr	Ala	Ser	Pro
		195					200					205			
Ala	Arg	Asp	Asp	Lys	Ala	Ser	Tyr	Val	Ala	Trp	Gly	His	Ser	Thr	Val
	210					215					220				

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Val Asn Pro Trp Gly Glu Val Leu Ala Lys Ala Gly Thr Glu Glu Ala
 225 230 235 240
 Ile Val Tyr Ser Asp Ile Asp Leu Lys Lys Leu Ala Glu Ile Arg Gln
 245 250 255
 Gln Ile Pro Val Phe Arg Gln Lys Arg Ser Asp Leu Tyr Ala Val Glu
 260 265 270
 Met Lys Lys Pro
 275

<210> 2
 <211> 276
 <212> PRT
 <213> Mus musculus

<400> 2
 Met Ser Thr Phe Arg Leu Ala Leu Ile Gln Leu Gln Val Ser Ser Ile
 1 5 10 15
 Lys Ser Asp Asn Leu Thr Arg Ala Cys Ser Leu Val Arg Glu Ala Ala
 20 25 30
 Lys Gln Gly Ala Asn Ile Val Ser Leu Pro Glu Cys Phe Asn Ser Pro
 35 40 45
 Tyr Gly Thr Thr Tyr Phe Pro Asp Tyr Ala Glu Lys Ile Pro Gly Glu
 50 55 60
 Ser Thr Gln Lys Leu Ser Glu Val Ala Lys Glu Ser Ser Ile Tyr Leu
 65 70 75 80
 Ile Gly Gly Ser Ile Pro Glu Glu Asp Ala Gly Lys Leu Tyr Asn Thr
 85 90 95
 Cys Ser Val Phe Gly Pro Asp Gly Ser Leu Leu Val Lys His Arg Lys
 100 105 110
 Ile His Leu Phe Asp Ile Asp Val Pro Gly Lys Ile Thr Phe Gln Glu
 115 120 125
 Ser Lys Thr Leu Ser Pro Gly Asp Ser Phe Ser Thr Phe Asp Thr Pro
 130 135 140
 Tyr Cys Lys Val Gly Leu Gly Ile Cys Tyr Asp Met Arg Phe Ala Glu
 145 150 155 160
 Leu Ala Gln Ile Tyr Ala Gln Arg Gly Cys Gln Leu Leu Val Tyr Pro
 165 170 175
 Gly Ala Phe Asn Leu Thr Thr Gly Pro Ala His Trp Glu Leu Leu Gln
 180 185 190
 Arg Ala Arg Ala Val Asp Asn Gln Val Tyr Val Ala Thr Ala Ser Pro
 195 200 205
 Ala Arg Asp Asp Lys Ala Ser Tyr Val Ala Trp Gly His Ser Thr Val
 210 215 220
 Val Asp Pro Trp Gly Gln Val Leu Thr Lys Ala Gly Thr Glu Glu Thr
 225 230 235 240
 Ile Leu Tyr Ser Asp Ile Asp Leu Lys Lys Leu Ala Glu Ile Arg Gln
 245 250 255
 Gln Ile Pro Ile Leu Lys Gln Lys Arg Ala Asp Leu Tyr Thr Val Glu
 260 265 270
 Ser Lys Lys Pro
 275

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<210> 3
 <211> 288
 <212> PRT
 <213> *Xenopus laevis*

<400> 3
 Met Ala Gly Ala His Lys Pro Leu Ile Ala Val Cys Gln Met Thr Ser
 1 5 10 15
 Thr Ser Asp Lys Glu Lys Asn Phe Ala Thr Cys Ser Arg Leu Ile Arg
 20 25 30
 Glu Ala Ala Gly Arg Arg Ala Cys Met Val Phe Leu Pro Glu Ala Phe
 35 40 45
 Asp Tyr Ile Gly Gly Ser Ile Glu Glu Thr Leu Ser Leu Ala Glu Ser
 50 55 60
 Leu His Gly Asp Thr Ile Gln Arg Tyr Thr Gln Leu Ala Arg Glu Cys
 65 70 75 80
 Gly Leu Trp Leu Ser Leu Gly Gly Phe His Glu Lys Gly Pro Asn Trp
 85 90 95
 Asp Thr Asp Gln Arg Ile Ser Asn Ser His Val Val Val Asp Asn Thr
 100 105 110
 Gly His Ile Val Ser Val Tyr Arg Lys Ala His Leu Phe Asp Val Asp
 115 120 125
 Leu Gln Asn Gly Val Ser Leu Arg Glu Ser Ser Ser Thr Leu Pro Gly
 130 135 140
 Ala Glu Leu Ile Arg Pro Ile Thr Ser Pro Ala Gly Lys Ile Gly Leu
 145 150 155 160
 Gly Val Cys Tyr Asp Leu Arg Phe Pro Glu Phe Ser Leu Ala Leu Ala
 165 170 175
 Gln Gln Gly Ala Glu Leu Leu Thr Tyr Pro Ser Ala Phe Thr Leu Thr
 180 185 190
 Thr Gly Leu Ala His Trp Glu Val Leu Leu Arg Ala Arg Ala Ile Glu
 195 200 205
 Thr Gln Cys Tyr Val Val Ala Ala Gln Thr Asp Arg His Asn Glu
 210 215 220
 Lys Arg Thr Ser Tyr Gly His Ala Met Val Val Asp Pro Trp Gly Leu
 225 230 235 240
 Val Ile Gly Gln Cys Gln Glu Gly Thr Gly Ile Cys Tyr Ala Glu Ile
 245 250 255
 Asp Ile Pro Tyr Met Glu Arg Val Arg Arg Asp Met Pro Val Trp Arg
 260 265 270
 His Arg Arg Thr Asp Leu Tyr Gly Lys Ile Ser Phe Asn Lys Pro Asp
 275 280 285

<210> 4
 <211> 307
 <212> PRT
 <213> *S. cerevisiae*

<400> 4
 Met Thr Ser Lys Leu Lys Arg Val Ala Val Ala Gln Leu Cys Ser Ser
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 Ala Asp Leu Thr Lys Asn Leu Lys Val Val Lys Glu Leu Ile Ser Glu
 20 25 30
 Ala Ile Gln Lys Lys Ala Asp Val Val Phe Leu Pro Glu Ala Ser Asp
 35 40 45

Tyr Leu Ser Gln Asn Pro Leu His Ser Arg Tyr Leu Ala Gln Lys Ser
 50 55 60
 Pro Lys Phe Ile Arg Gln Leu Gln Ser Ser Ile Thr Asp Leu Val Arg
 65 70 75 80
 Asp Asn Ser Arg Asn Ile Asp Val Ser Ile Gly Val His Leu Pro Pro
 85 90 95
 Ser Glu Gln Asp Leu Leu Glu Gly Asn Asp Arg Val Arg Asn Val Leu
 100 105 110
 Leu Tyr Ile Asp His Glu Gly Lys Ile Leu Gln Glu Tyr Gln Lys Leu
 115 120 125
 His Leu Phe Asp Val Asp Val Pro Asn Gly Pro Ile Leu Lys Glu Ser
 130 135 140
 Lys Ser Val Gln Pro Gly Lys Ala Ile Pro Asp Ile Ile Glu Ser Pro
 145 150 155 160
 Leu Gly Lys Leu Gly Ser Ala Ile Cys Tyr Asp Ile Arg Phe Pro Glu
 165 170 175
 Phe Ser Leu Lys Leu Arg Ser Met Gly Ala Glu Ile Leu Cys Phe Pro
 180 185 190
 Ser Ala Phe Thr Ile Lys Thr Gly Glu Ala His Trp Glu Leu Leu Gly
 195 200 205
 Arg Ala Arg Ala Val Asp Thr Gln Cys Tyr Val Leu Met Pro Gly Gln
 210 215 220
 Val Gly Met His Asp Leu Ser Asp Pro Glu Trp Glu Lys Gln Ser His
 225 230 235 240
 Met Ser Ala Leu Glu Lys Ser Ser Arg Arg Glu Ser Trp Gly His Ser
 245 250 255
 Met Val Ile Asp Pro Trp Gly Lys Ile Ile Ala His Ala Asp Pro Ser
 260 265 270
 Thr Val Gly Pro Gln Leu Ile Leu Ala Asp Leu Asp Arg Glu Leu Leu
 275 280 285
 Gln Glu Ile Arg Asn Lys Met Pro Leu Trp Asn Gln Arg Arg Asp Asp
 290 295 300
 Leu Phe His
 305

<210> 5
 <211> 291
 <212> PRT
 <213> S. cerevisiae

<400> 5
 Met Ser Ala Ser Lys Ile Leu Ser Gln Lys Ile Lys Val Ala Leu Val
 1 5 10 15
 Gln Leu Ser Gly Ser Ser Pro Asp Lys Met Ala Asn Leu Gln Arg Ala
 20 25 30
 Ala Thr Phe Ile Glu Arg Ala Met Lys Glu Gln Pro Asp Thr Lys Leu
 35 40 45
 Val Val Leu Pro Glu Cys Phe Asn Ser Pro Tyr Ser Thr Asp Gln Phe
 50 55 60
 Arg Lys Tyr Ser Glu Val Ile Asn Pro Lys Glu Pro Ser Thr Ser Val
 65 70 75 80
 Gln Phe Leu Ser Asn Leu Ala Asn Lys Phe Lys Ile Ile Leu Val Gly
 85 90 95
 Gly Thr Ile Pro Glu Leu Asp Pro Lys Thr Asp Lys Ile Tyr Asn Thr
 100 105 110

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Ser Ile Ile Phe Asn Glu Asp Gly Lys Leu Ile Asp Lys His Arg Lys
    115                      120                      125
Val His Leu Phe Asp Val Asp Ile Pro Asn Gly Ile Ser Phe His Glu
    130                      135                      140
Ser Glu Thr Leu Ser Pro Gly Glu Lys Ser Thr Thr Ile Asp Thr Lys
    145                      150                      155                      160
Tyr Gly Lys Phe Gly Val Gly Ile Cys Tyr Asp Met Arg Phe Pro Glu
                      165                      170                      175
Leu Ala Met Leu Ser Ala Arg Lys Gly Ala Phe Ala Met Ile Tyr Pro
    180                      185                      190
Ser Ala Phe Asn Thr Val Thr Gly Pro Leu His Trp His Leu Leu Ala
    195                      200                      205
Arg Ser Arg Ala Val Asp Asn Gln Val Tyr Val Met Leu Cys Ser Pro
    210                      215                      220
Ala Arg Asn Leu Gln Ser Ser Tyr His Ala Tyr Gly His Ser Ile Val
    225                      230                      235                      240
Val Asp Pro Arg Gly Lys Ile Val Ala Glu Ala Gly Glu Gly Glu Glu
    245                      250                      255
Ile Ile Tyr Ala Glu Leu Asp Pro Glu Val Ile Glu Ser Phe Arg Gln
    260                      265                      270
Ala Val Pro Leu Thr Lys Gln Arg Arg Phe Asp Val Tyr Ser Asp Val
    275                      280                      285
Asn Ala His
    290

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<210> 6
<211> 276
<212> PRT
<213> S. pombe

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<400> 6
Met Thr Leu Ala Ala Val Ala Gln Leu Asn Ser Ser Gly Ser Ile Leu
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Lys Asn Leu Ala Ile Cys Lys Glu Leu Ile Ser Gln Ala Ala Ala Lys
    20                      25                      30
Gly Ala Lys Cys Ile Phe Phe Pro Glu Ala Ser Asp Phe Ile Ala His
    35                      40                      45
Asn Ser Asp Glu Ala Ile Glu Leu Thr Asn His Pro Asp Cys Ser Lys
    50                      55                      60
Phe Ile Arg Asp Val Arg Glu Ser Ala Thr Lys His Ser Ile Phe Val
    65                      70                      75                      80
Asn Ile Cys Val His Glu Pro Ser Lys Val Lys Asn Lys Leu Leu Asn
    85                      90                      95
Ser Ser Leu Phe Ile Glu Pro Leu His Gly Glu Ile Ile Ser Arg Tyr
    100                      105                      110
Ser Lys Ala His Leu Phe Asp Val Glu Ile Lys Asn Gly Pro Thr Leu
    115                      120                      125
Lys Glu Ser Asn Thr Thr Leu Arg Gly Glu Ala Ile Leu Pro Pro Cys
    130                      135                      140
Lys Thr Pro Leu Gly Lys Val Gly Ser Ala Ile Cys Phe Asp Ile Arg
    145                      150                      155                      160
Phe Pro Glu Gln Ala Ile Lys Leu Arg Asn Met Gly Ala His Ile Ile
    165                      170                      175
Thr Tyr Pro Ser Ala Phe Thr Glu Lys Thr Gly Ala Ala His Trp Glu
    180                      185                      190

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Val Leu Leu Arg Ala Arg Ala Leu Asp Ser Gln Cys Tyr Val Ile Ala
 195 200 205
 Pro Ala Gln Gly Gly Lys His Asn Glu Lys Arg Ala Ser Tyr Gly His
 210 215 220
 Ser Met Ile Val Asp Pro Trp Gly Thr Val Ile Ala Gln Tyr Ser Asp
 225 230 235 240
 Ile Ser Ser Pro Asn Gly Leu Ile Phe Ala Asp Leu Asp Leu Asn Leu
 245 250 255
 Val Asp His Val Arg Thr Tyr Ile Pro Leu Leu Arg Arg Asn Asp Leu
 260 265 270
 Tyr Pro Thr Ile
 275

<210> 7
 <211> 322
 <212> PRT
 <213> S. pombe

<400> 7
 Met Asn Ser Lys Phe Phe Gly Leu Val Gln Lys Gly Thr Arg Ser Phe
 1 5 10 15
 Phe Pro Ser Leu Asn Phe Cys Tyr Thr Arg Asn Ile Met Ser Val Ser
 20 25 30
 Ala Ser Ser Leu Val Pro Lys Asp Phe Arg Ala Phe Arg Ile Gly Leu
 35 40 45
 Val Gln Leu Ala Asn Thr Lys Asp Lys Ser Glu Asn Leu Gln Leu Ala
 50 55 60
 Arg Leu Lys Val Leu Glu Ala Ala Lys Asn Gly Ser Asn Val Ile Val
 65 70 75 80
 Leu Pro Glu Ile Phe Asn Ser Pro Tyr Gly Thr Gly Tyr Phe Asn Gln
 85 90 95
 Tyr Ala Glu Pro Ile Glu Glu Ser Ser Pro Ser Tyr Gln Ala Leu Ser
 100 105 110
 Ser Met Ala Lys Asp Thr Lys Thr Tyr Leu Phe Gly Gly Ser Ile Pro
 115 120 125
 Glu Arg Lys Asp Gly Lys Leu Tyr Asn Thr Ala Met Val Phe Asp Pro
 130 135 140
 Ser Gly Lys Leu Ile Ala Val His Arg Lys Ile His Leu Phe Asp Ile
 145 150 155 160
 Asp Ile Pro Gly Gly Val Ser Phe Arg Glu Ser Asp Ser Leu Ser Pro
 165 170 175
 Gly Asp Ala Met Thr Met Val Asp Thr Glu Tyr Gly Lys Phe Gly Leu
 180 185 190
 Gly Ile Cys Tyr Asp Ile Arg Phe Pro Glu Leu Ala Met Ile Ala Ala
 195 200 205
 Arg Asn Gly Cys Ser Val Met Ile Tyr Pro Gly Ala Phe Asn Leu Ser
 210 215 220
 Thr Gly Pro Leu His Trp Glu Leu Leu Ala Arg Ala Arg Ala Val Asp
 225 230 235 240
 Asn Glu Met Phe Val Ala Cys Cys Ala Pro Ala Arg Asp Met Asn Ala
 245 250 255
 Asp Tyr His Ser Trp Gly His Ser Thr Val Val Asp Pro Phe Gly Lys
 260 265 270
 Val Ile Ala Thr Thr Asp Glu Lys Pro Ser Ile Val Tyr Ala Asp Ile
 275 280 285

Asp Pro Ser Val Met Ser Thr Ala Arg Asn Ser Val Pro Ile Tyr Thr
 290 295 300
 Gln Arg Arg Phe Asp Val Tyr Ser Glu Val Leu Pro Ala Leu Lys Lys
 305 310 315 320
 Glu Glu

<210> 8
 <211> 1359
 <212> DNA
 <213> Homo sapiens

<220>
 <221> misc_feature
 <222> 1270
 <223> n = A,T,C or G

<400> 8
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 tcttccatca aatcagataa cgtcactcgc gcttgtagct tcatccggga ggcagcaacg 120
 caaggagcca aaatagtttc tttgccggaa tgctttaatt ctccatatgg agcgaaatat 180
 tttcctgaat atgcagagaa aattcctggt gaatccacac agaagctttc tgaagtagca 240
 aaggaatgca gcatatatct cattggaggc tctatccctg aagaggatgc tgggaaatta 300
 tataacacct gtgctgtggt tgggcctgat ggaactttac tagcaaagta tagaaagatc 360
 catctgtttg acattgatgt tcctggaaaa attacatttc aagaatctaa aacattgagt 420
 ccgggtgata gtttctccac atttgatact ccttactgca gagtgggtct gggcatctgc 480
 tacgacatgc ggtttgcaga gcttgcaaca atctacgcac agagaggctg ccagctgttg 540
 gtatatccag gagcttttaa tctgaccact ggaccagccc attgggagtt acttcagcga 600
 agccgggctg ttgataatca ggtgtatgtg gccacagcct ctccctgccg ggatgacaaa 660
 gcctcctatg ttgcctgggg acacagcacc gtggtgaacc ctggggggga ggttctagcc 720
 aaagctggca cagaagaagc aatcgtgtat tcagacatag acctgaagaa gctggctgaa 780
 atacgccagc aaatccccgt ttttagacag aagcgatcag acctctatgc tgtggagatg 840
 aaaaagccct aaagtattatg tttctaattg gtcacagaat aggacgatat gattctacaa 900
 cataatcaac tccctattaa attctttaat gaagaaaaaa aatttaaaaa aaaaaaaaaa 960
 aacctaggtt ctctattgag atgagaaagc ctctattatg tgacattttc cagccacat 1020
 taaatagtta aaaaggatgc agcctggagc cagagagcag aaagctgggc tggttctgaa 1080
 gcttcttcca tacttaagtt gcctccaagc agtttgtgaa agtatcagat cttggtatcc 1140
 tgggtgattga ttcacctaat ataaatatat ttgtgtcatg aacctcttaa aaagttgctg 1200
 ggagttgtaa tctccatcat ctaggaaaac gtgggtcttg gtgctattct tttccaagca 1260
 ggtaccttgn aagttccatt tttgggttca tgagttagta taggaacgca agggtgatac 1320
 atctttgggt gttttgccag agaagttggg cagccccac 1359

<210> 9
 <211> 1292
 <212> DNA
 <213> Mus musculus

<400> 9
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 ctggccctca tacagcttca agtttcttcc attaaatcag ataaccttac cggggttgt 120
 agcctagtgc gggaggcagc aaagcaaggc gccaacatag tttctctgcc tgagtgttc 180
 aatttctccat atggaacaac ctactttcct gactatgcag agaagattcc tggagagtcc 240
 acacaaaagc tttctgaagt agcaaaggag agcagcatat atctcattgg aggctccatc 300
 cctgaagagg atgctgggaa actgtataat acctgctctg tgtttgggcc tgatggaagt 360
 ttactggtaa agcacaggaa gatccatctg tttgacattg atgttccttg gaaaattacg 420
 tttcaagaat ctaaaacatt gagccctggt gatagtttct ccacatttga tacgccttac 480

tgcaaagtgg	gcctgggcat	ctgctatgat	atgcgcttcg	cggagcttgc	acaaatctat	540
gcacaaagag	gctgccagct	cttgggtgat	cctggagctt	tcaatctgac	cacaggacca	600
gcccactggg	agctgcttca	gcgagcccg	gctgttgata	atcaggtgta	tgtggctaca	660
gcctctcctg	ctcgggatga	caaagcctcg	tatgtggcct	ggggacacag	cactgttgtg	720
gatccttggg	ggcaggtcct	aaccaaagct	ggcacggagg	aaacaatcct	gtactcagac	780
atagacctga	agaagctggc	tgaaattcgg	cagcaaatcc	ccatttttaa	acagaaacga	840
gcagacctct	atacagtgga	atcaaagaag	ccttgatata	tgtttcaaaa	atgtcaccaa	900
caggatgatg	ctctgtcaga	tgatcaactc	tactacatct	cttttttttg	gagggagggg	960
ggaacagggc	catttcatgt	taattctatc	aatgatctgt	gccacaaggt	cccctatttt	1020
aattaaaagt	ttcatcttta	attaaaatgt	gcttggtaac	aatgttctag	ctcttaacta	1080
gtctgatggt	tcctaggcac	ttcagtccca	agatcctttt	gaacaattaa	aaactgaagc	1140
ctctaagcat	tgtttccatg	tgtggtgggc	tggtcccatc	tgtctgagaa	aatgtacatt	1200
taccagaaca	ctaattttca	tggtgcta	atcccatcaa	catgacactt	ttaaaacttt	1260
ttattaaaaa	ttgttttcat	acaataaaaa	aa			1292

<210> 10
<211> 1214
<212> DNA
<213> *Xenopus laevis*

<220>
<221> misc_feature
<222> 1083
<223> n = A,T,C or G

gtgagtga	cgtgtgcagt	ggcaactaag	gcctcctggg	aaaatgtaga	ggagcgtgag	60
cttcgcggga	caggacaggg	tcttaggctc	tgccttgtgt	ccacacgccc	ttgtgcagac	120
tgctatagac	tgtgacttta	accctgtgtc	cggatatagg	ggttagaagc	ctgagtgcaa	180
tggtctggtg	ccacaagccc	ctgattgccc	tgtgccagat	gacttcaacc	tctgataagg	240
agaagaat	cgccacgtgt	tcgcggctga	tccgggaggg	tgccggggcg	cgcgcttgca	300
tggtgtttct	gccggaagcc	tttgactata	tccggggcag	cattgaggag	acgctgagtc	360
tggtctgagtc	tctacatggg	gacaccattc	agcgttacac	ccaactcgcc	agggagtgtg	420
ggctctggct	ttccctgggg	ggatttcatg	agaaaggacc	caactgggac	acggaccaac	480
gcatttccaa	ttctcacgtg	gttgtggaca	acacagggca	catagtatcg	gtgtaccgca	540
aggctcacct	gtttgacgta	gacttgcaga	atggagtgtc	actcagagag	agcagttcca	600
ccctccccgg	agcagagctt	attcgcccc	tcacttctcc	agcaggaaag	attggcctgg	660
gggtgtgtta	cgacctccgc	ttcccagaat	tctccttggc	tctggcccaa	caaggagcag	720
aacttctcac	ttacccttct	gccttcaacc	tcaactactg	tctggcacat	tgggaggtgt	780
tgtctgagag	ccgtgccata	gaaacccagt	gctacgtagt	tgcagcggca	cagacagaca	840
gacacaatga	gaagaggacg	tcctatggtc	acgctatggg	ggtagaccgg	tgggggctgg	900
tcattggcca	atgccaggaa	ggaacaggaa	tatgttatgc	tgagattgac	attccctaca	960
tggagcgtgt	gaggcgggac	atgcgggtgt	ggaggcaccg	caggactgat	ctgtatggga	1020
aaatctcctt	taataaacc	gactgactcc	ataatggatc	acctgcacct	atgggggcaa	1080
agnctttccc	ctgattgctg	aaattcctca	atctgtgact	gtgaatgaca	atgaacgtga	1140
cttggaattg	cctgggttat	gcacgggcaa	tgattctcta	cagtaattct	caataaaagt	1200
gctgaacctt	aaaa					1214

<210> 11
<211> 346
<212> PRT
<213> *Arabidopsis thaliana*

<400> 11	Met	Ser	Ser	Thr	Lys	Asp	Met	Ser	Thr	Val	Gln	Asn	Ala	Thr	Pro	Phe
	1				5					10					15	

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Asn Gly Val Ala Pro Ser Thr Thr Val Arg Val Thr Ile Val Gln Ser
    20          25          30
Ser Thr Val Tyr Asn Asp Thr Pro Ala Thr Ile Asp Lys Ala Glu Lys
    35          40          45
Tyr Ile Val Glu Ala Ala Ser Lys Gly Ala Glu Leu Val Leu Phe Pro
    50          55          60
Glu Gly Phe Ile Gly Gly Tyr Pro Arg Gly Phe Arg Phe Gly Leu Ala
    65          70          75          80
Val Gly Val His Asn Glu Glu Gly Arg Asp Glu Phe Arg Lys Tyr His
    85          90          95
Ala Ser Ala Ile His Val Pro Gly Pro Glu Val Ala Arg Leu Ala Asp
    100         105         110
Val Ala Arg Lys Asn His Val Tyr Leu Val Met Gly Ala Ile Glu Lys
    115         120         125
Glu Gly Tyr Thr Leu Tyr Cys Thr Val Leu Phe Phe Ser Pro Gln Gly
    130         135         140
Gln Phe Leu Gly Lys His Arg Lys Leu Met Pro Thr Ser Leu Glu Arg
    145         150         155         160
Cys Ile Trp Gly Gln Gly Asp Gly Ser Thr Ile Pro Val Tyr Asp Thr
    165         170         175
Pro Ile Gly Lys Leu Gly Ala Ala Ile Cys Trp Glu Asn Arg Met Pro
    180         185         190
Leu Tyr Arg Thr Ala Leu Tyr Ala Lys Gly Ile Glu Leu Tyr Cys Ala
    195         200         205
Pro Thr Ala Asp Gly Ser Lys Glu Trp Gln Ser Ser Met Leu His Ile
    210         215         220
Ala Ile Glu Gly Gly Cys Phe Val Leu Ser Ala Cys Gln Phe Cys Gln
    225         230         235         240
Arg Lys His Phe Pro Asp His Pro Asp Tyr Leu Phe Thr Asp Trp Tyr
    245         250         255
Asp Asp Lys Glu His Asp Ser Ile Val Ser Gln Gly Gly Ser Val Ile
    260         265         270
Ile Ser Pro Leu Gly Gln Val Leu Ala Gly Pro Asn Phe Glu Ser Glu
    275         280         285
Gly Leu Val Thr Ala Asp Ile Asp Leu Gly Asp Ile Ala Arg Ala Lys
    290         295         300
Leu Tyr Phe Asp Ser Val Gly His Tyr Ser Arg Pro Asp Val Leu His
    305         310         315         320
Leu Thr Val Asn Glu His Pro Arg Lys Ser Val Thr Phe Val Thr Lys
    325         330         335
Val Glu Lys Ala Glu Asp Asp Ser Asn Lys
    340         345

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<210> 12
<211> 244
<212> PRT
<213> Homo sapiens

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<400> 12
Met Ala Ile Ser Ser Ser Ser Cys Glu Leu Pro Leu Val Ala Val Cys
    1          5          10          15
Gln Val Thr Ser Thr Pro Asp Lys Gln Gln Asn Phe Lys Thr Cys Ala
    20          25          30
Glu Leu Val Arg Glu Ala Ala Arg Leu Gly Ala Cys Leu Ala Phe Leu
    35          40          45

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Pro Glu Ala Phe Asp Phe Ile Ala Arg Asp Pro Ala Glu Thr Leu His
 50          55          60
Leu Ser Glu Pro Leu Gly Gly Lys Leu Leu Glu Glu Tyr Thr Gln Leu
 65          70          75          80
Ala Arg Glu Cys Gly Leu Trp Leu Ser Leu Gly Gly Phe His Glu Arg
          85          90          95
Gly Gln Asp Trp Glu Gln Thr Gln Lys Ile Tyr Asn Cys His Val Leu
          100          105          110
Leu Asn Ser Lys Gly Ala Val Val Ala Thr Tyr Arg Lys Thr His Leu
          115          120          125
Cys Asp Val Glu Ile Pro Gly Gln Gly Pro Met Cys Glu Ser Asn Ser
          130          135          140
Thr Met Pro Gly Pro Ser Leu Glu Ser Pro Val Ser Thr Pro Ala Gly
          145          150          155          160
Lys Ile Gly Leu Ala Val Cys Tyr Asp Met Arg Phe Pro Glu Leu Ser
          165          170          175
Leu Ala Leu Ala Gln Ala Gly Ala Glu Ile Leu Thr Tyr Pro Ser Ala
          180          185          190
Phe Gly Ser Ile Thr Gly Pro Ala His Trp Glu Val Leu Leu Arg Ala
          195          200          205
Arg Ala Ile Glu Thr Gln Cys Tyr Val Val Ala Ala Ala Gln Cys Gly
          210          215          220
Arg His His Glu Lys Arg Ala Ser Tyr Gly His Ser Met Val Val Asp
          225          230          235          240
Pro Trp Gly Thr

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<210> 13
<211> 276
<212> PRT
<213> Mus musculus

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<400> 13
Met Leu Gly Phe Ile Thr Arg Pro Pro His Gln Leu Leu Cys Thr Gly
 1          5          10          15
Tyr Arg Leu Leu Arg Ile Pro Val Leu Cys Thr Gln Pro Arg Pro Arg
          20          25          30
Thr Met Ser Ser Ser Thr Ser Trp Glu Leu Pro Leu Val Ala Val Cys
          35          40          45
Gln Val Thr Ser Thr Pro Asn Lys Gln Glu Asn Phe Lys Thr Cys Ala
          50          55          60
Glu Leu Val Gln Glu Ala Ala Arg Leu Gly Ala Cys Leu Ala Phe Leu
          65          70          75          80
Pro Glu Ala Phe Asp Phe Ile Ala Arg Asn Pro Ala Glu Thr Leu Leu
          85          90          95
Leu Ser Glu Pro Leu Asn Gly Asp Leu Leu Gly Gln Tyr Ser Gln Leu
          100          105          110
Ala Arg Glu Cys Gly Ile Trp Leu Ser Leu Gly Gly Phe His Glu Arg
          115          120          125
Gly Gln Asp Trp Glu Gln Asn Gln Lys Ile Tyr Asn Cys His Val Leu
          130          135          140
Leu Asn Ser Lys Gly Ser Val Val Ala Ser Tyr Arg Lys Thr His Leu
          145          150          155          160
Cys Asp Val Glu Ile Pro Gly Gln Gly Pro Met Arg Glu Ser Asn Tyr
          165          170          175

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Thr Lys Pro Gly Gly Thr Leu Glu Pro Pro Val Lys Thr Pro Ala Gly
 180 185 190
 Lys Val Gly Leu Ala Ile Cys Tyr Asp Met Arg Phe Pro Glu Leu Ser
 195 200 205
 Leu Lys Leu Ala Gln Ala Gly Ala Glu Ile Leu Thr Tyr Pro Ser Ala
 210 215 220
 Phe Gly Ser Val Thr Gly Pro Ala His Trp Glu Val Leu Leu Arg Ala
 225 230 235 240
 Arg Ala Ile Glu Ser Gln Cys Tyr Val Ile Ala Ala Ala Gln Cys Gly
 245 250 255
 Arg His His Glu Thr Arg Ala Ser Tyr Gly His Ser Met Val Val Asp
 260 265 270
 Pro Trp Gly Thr
 275

<210> 14

<211> 260

<212> PRT

<213> D. melanogaster

<400> 14

Met Ser Thr Leu Val Asn Thr Thr Arg Arg Ser Ile Val Ile Ala Ile
 1 5 10 15
 His Gln Gln Leu Arg Arg Met Ser Val Gln Lys Arg Lys Asp Gln Ser
 20 25 30
 Ala Thr Ile Ala Val Gly Gln Met Arg Ser Thr Ser Asp Lys Ala Ala
 35 40 45
 Asn Leu Ser Gln Val Ile Glu Leu Val Asp Arg Ala Lys Ser Gln Asn
 50 55 60
 Ala Cys Met Leu Phe Leu Pro Glu Cys Cys Asp Phe Val Gly Glu Ser
 65 70 75 80
 Arg Thr Gln Thr Ile Glu Leu Ser Glu Gly Leu Asp Gly Glu Leu Met
 85 90 95
 Ala Gln Tyr Arg Glu Leu Ala Lys Cys Asn Lys Ile Trp Ile Ser Leu
 100 105 110
 Gly Gly Val His Glu Arg Asn Asp Gln Lys Ile Phe Asn Ala His Val
 115 120 125
 Leu Leu Asn Glu Lys Gly Glu Leu Ala Ala Val Tyr Arg Lys Leu His
 130 135 140
 Met Phe Asp Val Thr Thr Lys Glu Val Arg Leu Arg Glu Ser Asp Thr
 145 150 155 160
 Val Thr Pro Gly Tyr Cys Leu Glu Arg Pro Val Ser Thr Pro Val Gly
 165 170 175
 Gln Ile Gly Leu Gln Ile Cys Tyr Asp Leu Arg Phe Ala Glu Pro Ala
 180 185 190
 Val Leu Leu Arg Lys Leu Gly Ala Asn Leu Leu Thr Tyr Pro Ser Ala
 195 200 205
 Phe Thr Tyr Ala Thr Gly Lys Ala His Trp Glu Ile Leu Leu Arg Ala
 210 215 220
 Arg Ala Ile Glu Thr Gln Cys Phe Val Val Ala Ala Ala Gln Ile Gly
 225 230 235 240
 Trp His Asn Gln Lys Arg Gln Ser Trp Gly His Ser Met Ile Val Ser
 245 250 255
 Pro Trp Gly Asn
 260

<400> 15

[illegible]